

### REMARKS

By the foregoing amendments, claims 1, 2 and 4-13 have been canceled and new claims 14-44 have been added. Thus, claims 14-44 are in the application.

The oath or declaration was alleged to be defective in the outstanding Office Action because all inventors must sign the oath or declaration, MPEP 1410.01. Responsive to this indication, Applicants respectfully note that the present reissue application does not seek to enlarge the scope of the claims of the original patent and therefor is not only timely filed under 35 USC §251, as discussed more fully below, but also, under 37 CFR §1.172, is one wherein the assignee of the entire interest of the application can make the reissue oath or declaration. This has been done in the present case. The assignee of the entire interest, Hitachi, Ltd., has executed the declaration. The assignment showing this interest is recorded at Reel 4900, Frame 958, as indicated in the application papers. Thus, it is respectfully submitted that the declaration in the application is proper.

Claim 1 was rejected in the outstanding Office Action under 35 USC §102(b) as being anticipated by DD 148,997, as stated on page 2 of the Office Action. While the propriety of this rejection has been rendered moot by the cancellation of claim 1, it is respectfully submitted that new claims 14-44 patentably define over the cited reference.

Applicants respectfully note that the reference DD 148,997 teaches a wafer comprising connecting portions defined between circular contour portions and curved notches or incisions 3, 4, 5 and 6, as shown in the patent drawing. As stated on page 11, lines 13-16 of the English translation of the cited reference, the connecting portions 11-18 are "rounded off during the etching, prior to the polishing process". However, DD 148,997 does not teach a step of providing a wafer, "wherein an outer peripheral part of said wafer is chamfered in a thickness direction by mechanical chamfering, and wherein said connecting portions are chamfered in a plane parallel to said main surface by mechanical chamfering" as in new claims 14-27.

Applicants respectfully note that mechanical chamfering is more effective than rounding off by chemical etching in order to obtain a chamfer having enough curvature to effectively reduce a defect of a foreign matter due to the appearance of chipping pieces, a defect of a transportation, or a defect of a thickness of a resist film. The round off profile by chemical etching in DD 148,997 is restricted by specification of wafer thickness, because the process of round off by chemical etching accompanies etching in the thickness direction of the wafer. In DD 148,997, the wafer is etched about 100  $\mu\text{m}$  in the thickness direction in the etching process, see page 10, line 21 through page 11, line 19 of the English language translation of the reference. In ordinary practice, the

round off profile obtained by the 100  $\mu\text{m}$  etching with conventional method does not sharply reduce the defects.

On the contrary, it is easy to chamfer having little or no effect to a total thickness of the wafer by mechanical chamfering or chamfering by grindstone, as recited in new claims 28-41. Accordingly, a chamfer having enough curvature on a wafer of a required specification thickness is easily obtainable in accordance with the present invention as recited in the new application claims 14, 28 and the others.

It is an object of the present invention to prevent the occurrence of the various defects. The prevention of defects results in an increase in the number of good dies in each wafer. On the contrary, in DD 148,997, the incisions 3, 4, 5 and 6 divide the wafer into four sections in order to diminish or eliminate the effects of the temperature field within the volume of the wafer. However, the number of good dies obtainable from the wafer is diminished by the incisions, because the incisions cause the loss of wafer structurable area for electronic components. In accordance with new claims 42, 43 and the others, it is effective in accordance with the present invention to increase the number of good dies by employing a wafer having a curved positioning notch wherein the notch does not cause loss of wafer structurable area for electronic components and does not divide the wafer into several sections as is the case in DD 148,997. The problem of preventing defects while at the same time increasing the yield of

good dies from each wafer addressed by the present invention is not considered or solved by the cited reference. It is respectfully submitted that new claims 14-44 patentably define over DD 148,997. Accordingly, reconsideration and allowance of the claims are respectfully requested.

Claims 4-13 were rejected in the outstanding Office Action under 35 USC §251 as allegedly being broadened in a reissue application filed outside the two year statutory period. It is stated in this rejection that the addition of process claims 4-13 is considered as broadening of the invention because there were no process claims in the original patent. It was also noted that the process claims 4-13 are directed to the same subject matter as the non-elected claims of the original application and the Applicants have failed to file a divisional application for the non-elected claims. This rejection is hereby traversed and reconsideration thereof is respectfully requested in view of Applicants' remarks set forth below.

The statement in the rejection that Applicants have failed to file a divisional application for the non-elected claims is incorrect. The Examiner's attention is directed to U.S. Patent No. 5,279,992 which is based on a divisional application filed from the original application.

The present application is a reissue application seeking reissue of Assignee's U.S. Patent No. 5,230,747 (hereinafter the '747 patent). The '747 patent contains three claims directed to a wafer for forming an integrated circuit

thereon. It contains no process claims. However, the present reissue application as filed contained process claims 4-13, and now as amended contains process claims 14-44. The addition of the process claims in the reissue application is not *per se* broadening of the invention as suggested in the aforementioned rejection in the Office Action and in the present case it is not broadening of the invention under 35 USC §251.

The Court of Customs and Patent Appeals (CCPA), the predecessor of Court of Appeals for the Federal Circuit (CAFC), in *In re Ruth*, 126 USPQ 155 (1960), supports Applicants' position that the addition of process claims in a reissue application is not *per se* broadening of the invention as stated in the outstanding Office Action. In that case, Appellant's patent contained only apparatus claims, whereas Appellant's reissue application claim 12 was a process claim. The reissue had been filed more than two years after issuance of the patent. Process claim 12 had been rejected under 35 USC §251 as an enlargement of the scope of the claims of the original patent in a reissue application which had not been filed within two years from the grant of the original patent as required by 35 USC §251. In reviewing the Board of Appeals rejection on appeal, the court did not declare that without exception a process claim is broader than an apparatus claim. Rather, the court actually compared the scope of an apparatus claim of the patent with the scope of the process claim in the reissue application. In this regard, the court stated:

At the outset, it is clear that one cannot directly compare an apparatus claim with a process claim. However, since both types of claims are based on the same specification, we can determine what the common invention is and can then compare the claims on this basis.

In its analysis, the court noted that apparatus claim 1 of the patent calls for a means for agitating the material as it moves through the tank, while process claim 12 is not in any way limited to a process in which the material is agitated but, on the contrary, states that the material is maintained in a closely packed condition.

The court also made these further comparisons in its decision:

Apparatus claim 1 of the patent

the claimed apparatus includes a partition transversely dividing the liquid body exteriorly of the means which translate the material. "Presumably this partition has a function which we should expect to find in the corresponding process claim."

Process claim 12 of the reissue application

the process of claim 12 is not limited either expressly or by implication to the use of a partition nor does it contain any process step related thereto. Claim 12 calls merely for passing a flow of liquid through the material under the influence of gravity, but that step does not require the use of a partition

The court concluded from its comparison of the scope of the patent apparatus claim 1 and the reissue application process claim 12 that claim 12 may be infringed without either agitating the material or using a transverse partition,

whereas claim 1 is not infringed unless both these features are present. The court continued:

Obviously, therefore, claim 12, if allowed, would bring within the scope of the reissued patent processes which can be carried out in apparatus which would not have infringed the original patent. Claim 12, therefore, involves an enlargement of the scope of the claims of the original patent and since the reissue application was filed more than two years after the grant of that patent, the decision appealed from was proper.

This is the kind of analysis which must be done in the present case to determine whether or not process claims 4-13 in the reissue application as originally filed, and now process claims 14-44 in the application as amended involve an enlargement of the scope of the claims of the original '747 patent claims 1-3 to a wafer. It is respectfully submitted that the results of such an analysis will show that the scope of reissue process claims 4-13, and now reissue claims 14-44, involve no enlargement of the scope of claims 1-3 of the '747 patent such that the present application is proper under 35 USC §251.

The rejection of claims 4-13 in the present reissue application cited the Board of Patent Appeals and Interferences' decision in *Ex parte Wikdahl*, 10 USPQ2d 1546 (1989) in support of the rejection. In this regard, Applicants also note that the *Manual of Patent Examining Procedure*, MPEP §1412.03, makes the statement:

The addition of process claims as a new category of invention to be claimed in the patent (*i.e.*, where there were no method claims present in the original patent) is generally considered as being a broadening of the invention. See *Ex parte Wikdahl*, 10 USPQ2d 1546 (Bd. Pat. App. & Inter. 1989).

However, it is respectfully submitted that the Board's decision in *Ex parte Wikdahl* is distinguishable from the present case as one relating to a reexamination proceeding wherein the rejection was under 35 USC §305 (the law governing conduct of reexamination proceedings) and not a reissue application wherein a different section of the law, 35 USC §251, controls as in the present case.

In view of the above amendments and remarks, reconsideration and allowance of claims 14-44 are respectfully requested.

A Petition for Extension of Time under 37 CFR §1.136 and the appropriate fee for the extension of time are filed herewith. It was stated on page 2 of the outstanding Office Action that extensions of time in the application are governed by 37 CFR §1.550(c). It is respectfully submitted that this is erroneous. The Form PTOL-466 on page 2 of the Office Action is entitled "Office Action in *Ex Parte* Reexamination". However, as noted above, the present application is not a reexamination application, but a reissue application. As stated in 37 CFR §1.176, a reissue application is to be examined in the same

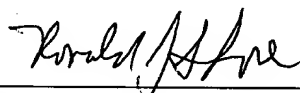


manner and is subject to all the requirements of the rules related to non-reissue, non-provisional applications and is subject to all requirements of rules related to non-reissue applications. As such, extensions of time for responding to the Office Action are available under 37 CFR §1.136, not 37 CFR §1.550(c), which pertains to *ex parte* reexamination proceedings.

Please charge any additional fees due in connection with the filing of this paper or credit any overpayment in this regard to the undersigned's deposit account number, Account No. 01-2135 (ref.: 501.20289RC6).

Respectfully submitted,

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